

phosphine, chlorides of phosphorus, phosphorus trioxide, phosphorus pentoxide, phosphorus acid, the phosphoric acids, phosphorus oxychloride.

**Arsenic.**—Preparation and properties of arsenious oxide, arsenine, arsenic trichloride.

## PART II (To be completed in the Senior Intermediate Class).

Elementary ideas of radioactivity, the structure of the atom, isotopes, the periodic classification of elements.

**Boron.**—Preparation, properties and uses of boric acid and borax.

**Silicon.**—Silica, preparation and properties of silicon tetrafluoride and sodium silicate; glass.

Colloidal solutions: Dialysis, coagulation, Silica gel.

**Carbon.**—Allotropy, uses of active charcoal; preparation and properties of carbon monoxide, fuels, composition of carbon dioxide, carbon disulphide.

The occurrence, properties and uses of the following metals and their compounds. The preparation of the compounds to be indicated.

**Sodium.**—Metal, oxide, peroxide, hydroxide, carbonate, bicarbonate, halides, hypochlorite, sulphite, thiosulphate, cyanide, phosphate, nitrate.

Manufacture of common salt; the hydroxide, bicarbonate and carbonate of sodium.

**Potassium.**—Nitrate, chlorate, perchlorate.

**Copper.**—Metal, electrolytic refining; alloys, oxides, chlorides, copper sulphate.

**Silver.**—Metal, oxide, nitrate, halides.

**Gold.**—Metal and gold chloride.

**Magnesium.**—Metal, chloride, oxide, sulphate.

**Calcium.**—Metal, oxide, hydroxide, carbonate, chloride, sulphate, carbide, cyanamide, phosphate, superphosphate, bleaching powder (manufacture).

**Barium.**—Oxide, peroxide, hydroxide, carbonate, chloride, sulphate.

**Zinc.**—Metal, oxide, chloride, sulphate.

**Mercury.**—Metal, oxides, chlorides, sulphate, nitrates.

**Aluminium.**—Metal, oxide, chlorides, sulphate, alum.

**Tin.**—Metal, oxides, chlorides.

**Lead.**—Metal, oxides, chlorides, nitrate, acetate, white lead, alloys of lead.

**Chromium.**—Chromic oxide, chromium trioxide, chromates, dichromates, chrome alum.

**Manganese.**—Dioxide, potassium permanganate.

**Iron.**—Cast iron, wrought iron, steel; oxides, ferrous and ferric chlorides, ferrous sulphate, ferrous ammonium sulphate, potassium ferrocyanide, potassium ferricyanide, double and complex salts.

## ORGANIC CHEMISTRY.

**Introduction.**—Characteristics of organic compounds.

**Methane, ethane, Homologous series common petroleum products ethylene, acetylene, methyl iodide, chloroform, carbon tetrachloride, methyl alcohol, ethyl alcohol, glycerol, ether, formaldehyde, acetaldehyde, glucose, cane sugar, formic acid, acetic acid, acetone, ethyl acetate, benzene, toluene, naphthalene, phenol benzaldehyde, benzoic acid, salicylic acid, nitrobenzene, aniline.**

**Elementary account of starch, cellulose, oils and fats, proteins (egg albumin and casein).**

## PRACTICAL CHEMISTRY (TWO YEARS' COURSE).

1. Cutting, bending and drawing out glass tubing, study of Bunsen flame and the Burner.

2. Preparation and study of the properties of oxygen, oxides, hydrogen peroxide, hydrogen, chlorine, hydrogen chloride, ammonia, nitrous and nitric oxides, nitric acid, hydrogen sulphide, sulphur dioxide, carbon dioxide, boric acid, alum, ferrous ammonium sulphate, potassium permanganate and sodium thiosulphate.

3. Balance, sensitivity of the balance, Determination of water of hydration in crystals of zinc sulphate and barium chloride.

Equivalent weight of a metal by displacement of hydrogen or another metal; and by combination with oxygen or chlorine.

Solubility of a salt in water at 30°C or 35°C; solubility curves.

Molecular weights of oxygen and carbon dioxide.

4. Oxidation and reduction reactions.

Reactions of sodium hydroxide, sodium carbonate and ammonium hydroxide with metallic salts.

Study of the properties of hard and soft waters.

5. Qualitative analysis of simple salts. (Soluble in water or dil. acids.)

6. Volumetric analysis: exercises involving the use of the following standard solutions:—

Sodium carbonate, oxalic acid, hydrochloric acid, sodium hydroxide, permanganate and thiosulphate.

[Letter No. E. 10787, dated 8th February 1952, from the Educational Secretary to Government, Bangalore—Effective from the Junior Class of 1952-53.]

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Notification No. Ex. 2-1012-51-52, dated 18th June 1952.

## Amendment No. 115 to Calendar Vol. I for 1947-48.

The following is the detailed courses of Study for the Diploma courses in Persian and Arabic:—

### PERSIAN

**First Year:—**Elements of Grammar, and Pronunciation, the use of simple sentences, translation (seen and unseen passages) and reading of a text-book.

**Second Year:—**Grammar continued, more advanced translation, reading of prescribed text-books, conversation and free composition.

### TEXT BOOKS.

Extracts from prose works of Sadi, Jami, Hussain Waiz Kashifi from Safina-i-Adab.

Wukala-i-Murafa'ah, Romeo and Juliet by Ali Asghar Hikmat.

### BOOKS FOR REFERENCE.

Persian Grammar by Platts and Ranking.

Persian to English Dictionary by Steingas.

History of Persian Literature by Riza Shafag.

### ARABIC

**First Year:—**Elements of Grammar, and pronunciation, the use of simple sentences, translation (seen and unseen passages) and reading of a text-book.

**Second Year:—**Grammar continued, more advanced translation, reading of prescribed text-books, conversation, and free composition.

### TEXT BOOKS.

Al-Qiratur' Rashidah, part II and III.

Teach Yourself Arabic by Tritton.

Majani'ul Adab, Chapters I and II.

Tajir-i-Baghdad by Kamal Gilani.

### BOOKS FOR REFERENCE.

Arabic Literature by Gibb.

Arabic-English Dictionary by Hava.

Arabic Grammar by Thornton and Nicholson.

(Letter No. E. 3236, dated 18th June 1952, from the Education Secretary to Government, Bangalore.)

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Notification dated 23rd-24th July 1952.

**No. Ex. 5-392-52-53.** The following is the Special Subject prescribed in Psychology for the Honours Degree Final Examinations of 1954 and 1955.

SPEARMAN: "ABILITIES OF MAN".

By Order,

C. RANGACHAR,

Registrar.

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